Amendments to the Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A laser vibrometer for identifying remote targets by detecting mechanical vibrations therein, [[the]] said vibrometer having an array of coherent optical receivers for collecting a portion of laser light reflected by a remote target, each receiver providing ~~a coherent~~ an output, and signal processor means comprising an autocovariance processor having multiple inputs for combining said ~~coherent~~ outputs of the receivers to produce a signal representative of the remote target and for removing laser speckle.

Claim 2 (currently amended): A laser vibrometer according to claim 1, ~~in which~~ wherein the signal ~~processors comprise~~ processor means comprises a phase-locked loop having multiple inputs, in which the signal derived from the multiple inputs is representative of the remote target, substantially unaffected by laser speckle.

Claim 3 (currently amended): A laser vibrometer according to claim 2, ~~in which~~ wherein the phase-locked loop comprises multiple signal multipliers, said multipliers multiplying the input signals by a ~~further~~ second signal generated by a voltage controlled oscillator.

Claim 4 (original): A laser vibrometer according to claim 3, in which the further signal comprises a sinusoidal or a square wave.

Claim 5 (previously presented): A laser vibrometer according to claim 2, in which the phase-locked loop further comprises multiple low pass filters, said filters having cut-off frequencies in the kilohertz region.

Claim 6 (currently amended): ~~A laser vibrometer according to claim 2, in which~~ A laser vibrometer for identifying remote targets by detecting mechanical vibrations therein, said vibrometer having an array of coherent optical receivers for collecting a portion of laser light reflected by a remote target, each receiver providing an output, and signal processor means for combining said outputs of the receivers to produce a signal representative of the remote target and for removing laser speckle; wherein

the signal processor means comprises a phase-locked loop having multiple inputs and multiple low pass filters, wherein the signal derived from the multiple inputs is representative of the remote target, substantially unaffected by laser speckle; and

the phase-locked loop further comprises a summing amplifier which sums the signals generated by the multiple low pass filters and outputs a signal to an integrator.

Claim 7 (currently amended): A laser vibrometer according to claim [[6]] 3, ~~in which the~~ wherein:

the phase-locked loop further comprises a summing amplifier which sums the signals generated by the multiple low pass filters and outputs a signal to an integrator;

the integrator outputs a signal to an input of the voltage control oscillator[[,]]; and

said voltage control oscillator ~~generating~~ generates a signal which is input into the inputs of the multiple signal multipliers.

Claim 8 (currently amended): A laser vibrometer according to claim 1, in which the signal ~~processors comprise~~ processor means comprises an

autocovariance processor having multiple inputs, in which the signal derived from the multiple inputs is representative of the remote target, substantially unaffected by laser speckle.

Claim 9 (currently amended): A laser vibrometer according to claim [[8]] 1, ~~in which~~ wherein the signals output by the multiple receivers are passed to conversion means, said conversion means sampling the input signals to produce digital outputs in response to timing signals generated by a timing pulse generator.

Claim 10 (original): A laser vibrometer according to claim 9, in which the signals output by the multiple receivers are further passed to time delay means, said time delay means delaying the input signals by approximately 0.25 of a cycle at the centre frequency of the signals.

Claim 11 (original): A laser vibrometer according to claim 10, in which the time-delayed signals are passed to further conversion means, said further conversion means sampling the input signals to produce digital outputs in response to timing signals generated by a timing pulse generator.

Claim 12 (original): A laser vibrometer according to claim 11, further comprising summation means, for receiving the first and second converted signals, said converted signals comprising signal pairs, and performing a summation on said pairs of signals, said summation causing the signal due to the laser speckle to be greatly reduced and a signal representative of the mechanical vibration of the remote target to be output by the summation means.

Claim 13 (currently amended): A method of detecting the mechanical vibrations of a remote target using a laser vibrometer, comprising the steps of:

(a) illuminating the remote target with laser light;

(b) collecting a portion of the laser light reflected by the remote target by means of an array of coherent optical receivers, each receiver providing a coherent output;

c) processing said ~~coherent~~ outputs by combining together said ~~coherent~~ outputs in an autocovariance processor having multiple inputs in order to generate a signal representative of the mechanical vibration of the remote target that is substantially unaffected by laser speckle.

Claims 14-15 (canceled).